

REMARKS

Claims 1-8, 18, and 20-28 are pending. Claims 1, 21, 24, and 27 are in independent form.

In the action mailed April 5, 2005, the specification was objected to and claims 1-8 and 18-20 were rejected under 35 U.S.C. § 112, first paragraph on the basis of a typographical error in claim 1. Claim 1 has been amended to address the Examiner's concerns.

Claim 19 was objected to and being improperly dependent. Claim 19 has been canceled, rendering the objection moot.

New independent claims 21, 24, and 27 have been added. To advance prosecution, applicant now addresses the patentability of those claims over various references of record.

Claim 21

Claim 21 relates to a method that includes mechanically clamping a flexible pellicle membrane to a pellicle frame to hold the flexible pellicle membrane stretched across the pellicle frame without using an adhesive, and coupling the pellicle frame to a reticle to cover a pattern on the reticle with the pellicle membrane without using an adhesive. Coupling the pellicle frame to the reticle includes positioning a low outgas thermoplastic polymer between the pellicle frame and the reticle, and heating the thermoplastic polymer to couple the polymer to the pellicle frame and to the reticle.

The rejection of claim 1 in the office action mailed December 20, 2005 relied on each of U.S. Patent No. 6,524,754 to Eynon et al. (hereinafter "Eynon"), U.S. Patent No. 6,300,019 to Ikeda et al. (hereinafter "Ikeda"), and U.S. Patent No. 6,639,650 to Shirasaki (hereinafter "Shirasaki") as describing the mechanical securing of a pellicle to a frame.

However, claim 21 recites that a flexible pellicle membrane is mechanically clamped to a pellicle frame to hold the flexible pellicle membrane stretched across the pellicle frame without using an adhesive. In Eynon, pellicle 28 is fused silica and not flexible. Such a fused silica pellicle is not stretched but rather on a shelf 42 of a frame 44. *See Eynon*, col. 3, line 42-44. Moreover, Eynon relies on the gaps between pellicle 28 and frame 44 to relieve pressure beneath pellicle 28. *See Eynon*, col. 3, line 61-63. Accordingly, Eynon neither describes nor suggests mechanically clamping a flexible pellicle membrane to a pellicle frame to hold the flexible pellicle membrane stretched across the pellicle frame without using an adhesive, as recited in claim 21.

In Ikeda, pellicle mounting systems 60 are used to press a pellicle to a mask 10 during mounting. *See Ikeda*, col. 1, line 35-51. Applicant understands that the pellicle mounting systems 60 are removed after a pellicle is mounted so that imaging can proceed. For example, every pellicle mounting system 60 is

shown to be solid and to span an entire pellicle 30. See, e.g., *Ikeda*, FIGS. 1, 2, 4, 5A, 6A, 6B, 7A, 7B, 9A, 9B. See also *Ikeda*, FIG. 5B (showing the removal of pellicle mounting system 60 so that particle inspection can proceed). It is unlikely that light can reach the relevant portions of a mask 10 with a solid pellicle mounting system 60 covering the entire span of pellicle 30. Accordingly, *Ikeda* neither describes nor suggests mechanically clamping a flexible pellicle membrane to a pellicle frame to hold the flexible pellicle membrane stretched across the pellicle frame without using an adhesive, as recited in claim 21.

In *Shirasaki*, a membrane adhesive 2 is used to adhere every pellicle membrane to a frame 3. See, e.g., *Shirasaki*, col. 1, line 56-57; FIGS. 1, 2, 3, 4, 5, 6. This is perhaps not surprising, given that the components cited in the December 20, 2005 action as being frame members do not appear to be part of *Shirasaki*'s frame 3. In particular, pellicle holding part 9 and pellicle supporting part 10 are understood to be part of the light exposure apparatus. See *Shirasaki*, col. 7, line 22-24. Thus, *Shirasaki*'s pellicle membranes do not appear to be mechanically clamped to *Shirasaki*'s frame 3.

Moreover, in Shirasaki's implementation (as opposed to the prior art), the pellicle membrane 7 is a generally inflexible "thick glass plate" rather than a flexible pellicle membrane, as recited in claim 21. See, e.g., *Shirasaki*, col. 3, line 29-37; col. 4, line 28-46; col. 7, line 12-16; col. 7, line 65-col. 8, line 1.

Accordingly, Shirasaki neither describes nor suggests mechanically clamping a flexible pellicle membrane to a pellicle frame to hold the flexible pellicle membrane stretched across the pellicle frame without using an adhesive, as recited in claim 21.

Claim 24

Claim 24 relates to a system that includes a reticle having a lithography pattern formed thereon, a pellicle frame, a pellicle membrane spanned across the pellicle frame, and a low outgas polyester attaching the pellicle frame to the reticle without using an adhesive and with the pellicle membrane covering the pattern on the reticle.

The rejection of claim 1 in the office action mailed December 20, 2005 relied on each of U.S. Patent No. 6,841,312 to Kalk (hereinafter "Kalk") as describing a thermoplastic adhesive layer.

However, claim 24 recites that a low outgas polyester attaches a pellicle frame to a reticle without using an adhesive. Kalk neither describes or suggests the use of a low outgas polyester and appears to be primarily concerned with localizing heating, rather than outgassing. In further support, submitted herewith is a copy of U.S. Patent No. 6,056,844 to Guiles, et al. (hereinafter "Guiles") which appears to describe the same SMARTBOND product described at col. 5, line 15-34 of Kalk. As can be seen, Guiles neither describes or suggests that his technology involves a low outgas polyester.

Accordingly, Kalk neither describes nor suggests a low outgas polyester attaching a pellicle frame to a reticle without using an adhesive and with the flexible pellicle membrane covering the pattern on the reticle, as recited in claim 21.

Claim 27

Claim 27 relates to a system that includes a reticle having a pattern formed thereon, a flexible pellicle membrane, a pellicle frame comprising an inner frame member and an outer frame member to mechanically clamp the flexible pellicle membrane therebetween and stretch the flexible pellicle membrane spanned across the pellicle frame, and a thermoplastic polymer to couple the inner frame member of the pellicle frame to the reticle with the flexible pellicle membrane covering the pattern

on the reticle. The outer frame member remains otherwise unattached to the reticle.

The rejection of claim 1 in the office action mailed December 20, 2005 relied on each of Eynon, Ikeda, and Shirasaki as describing the mechanical securing of a pellicle to a frame.

However, claim 27 recites a pellicle frame comprising an inner frame member and an outer frame member to mechanically clamp a flexible pellicle membrane therebetween and stretch the flexible pellicle membrane spanned across the pellicle frame. As discussed above in regard to claim 24, none of Eynon, Ikeda, and Shirasaki describe or suggest such mechanical clamping to stretch a flexible pellicle membrane.

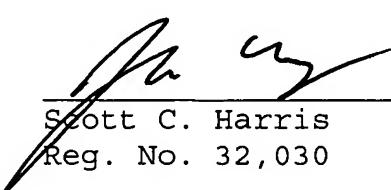
Moreover, claim 27 recites that an inner frame member of a pellicle frame is coupled to a reticle with a thermoplastic polymer, with an outer frame member remaining otherwise unattached to the reticle. None of Eynon, Ikeda, and Shirasaki describe or suggest such an attachment.

Accordingly, none of Eynon, Ikeda, and Shirasaki describe nor suggest elements and/or limitations recited in claim 27.

Applicant asks that all claims be allowed. A check for the excess claims fee is enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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